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From Production to Purpose

Using Design Led Innovation to Build Strategic Potential in a Family-Owned SME

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Abstract—There is an evident need to develop the strategic capabilities of companies from within, to ensure competitive competence in a time where strategy is a necessity. This paper is based on the first 4 months of a longitudinal embedded case study of a family-owned Australian small to medium enterprise, in their journey towards design integration. The first author was embedded as a ‘Design Innovation Catalyst’ to collaborate on overcoming early barriers of strategic development, using design led innovation. Action research methodology, semi-structured interviews with seven out of eight employees and a reflective journal revealed the absence of a shared vision, conflicting drivers and a focus on operational efficiency rather than strategy. Through the Catalyst’s facilitation, a company vision, general awareness, practice and knowledge in strategic development have emerged as the first steps to generating strategic design competence within the firm.

Keywords—*design led innovation; strategy; action research; family business management; SME*

I. INTRODUCTION

It is widely recognised that globalisation has lead to a shift from a price driven market to a value driven market, making it harder for companies to leverage their offerings and strengthen firm survival chances, without a solid business strategy [1]. This new dynamic has created an increased interest in improving the competitive capabilities of firms within industries [1], especially relieving struggling firms from the pressure of remaining relevant in a flooded market. Australian companies, particularly small to medium enterprises (SMEs) have been rendered highly vulnerable to economic threats and variations resulting from globalization [2]. They play a significant role to national prosperity as they employ more than half of the work force [3].

Market leaders and thriving enterprises are continuously exploring ways to use strategies and many have successfully leveraged their competitive advantages autonomously through utilising design [4]. Consequently, SMEs without established and resourceful teams or plentiful access to assets may doubt their

ability to use design to create competitive advantage [5]. It is important to establish how industry and academia can aid firms that are struggling to keep pace with growing consumer demands, an increasing stream of imports and the challenge of operating in a high-cost environment [1]. However more importantly, there is a need to explore how firms that are inexperienced in strategic design utilisation and business innovation can be assisted to develop their own capabilities. Little research has cultivated in the area of strategically underdeveloped SMEs.

Leveraging firm performance becomes challenging as internal design management plays a crucial role in bridging the firm functioning and design investment [6, 7]. Wrigley and Bucolo [8] propose that organisational leadership is the key to a company becoming strategically *design led*, and this is possible through the use of a *design led innovation* (DLI) approach. Involving a designer in the earliest stages of innovation is perceived to be of great significance to the quality of the outcomes [9]. However, the benefits of embedding a strategic designer *within* a firm in order to impact innovation across all internal domains; business model, operations and strategy through a longitudinal research project, is yet to be covered extensively in academia and fully assessed in practice. A *Design Innovation Catalyst* can be described as a new cross-disciplinary role, where a design thinker facilitates strategic innovation within an organisation, during the company journey towards becoming strategically design led [8].

Consequently, there is an evident gap in research, to which this study plans to contribute. The purpose of this paper is to describe the first phase of a longitudinal case study, on how design led innovation and Catalysts can beneficially aid Australian industry. This was conducted through utilising DLI to uncover and examine contemporary challenges of a strategically inexperienced, Australian, family owned SME. The participating firm is not predisposed to using strategic design. Therefore the aim is to approach and overcome barriers to strategic development within the company, as perceived by employees, through capability building as a part

of a DLI process. This research contributes to urgently needed empirical data to supplement the scarce body of knowledge on how design strategy can aid struggling firms regardless of previous training.

A review of literature places the study within the context of design led innovation, the challenges of SMEs and family firms, design management and strategy. The research question driving this paper is: *“What are the perceived barriers to strategic development within a non-design inclined, family owned SME, in the transformation from a focus on operational efficiency towards developing strategic capabilities and design integration?”* The results presented and discussed in this paper encompass data collected in the first four of the eleven months of embedded practice, facilitated by the first author positioned within a selected firm.

II. LITERATURE REVIEW

A. Design Led Innovation

DLI is emerging as a solution to strategically disoriented firms by proposing a new way of thinking and undertaking challenges, fostering top-line growth by enabling companies to go beyond short-lived competitive advantages and easily replaceable market positioning [10]. Companies can centre their business models on unique offerings and continuously reinvent themselves alongside changing societal needs and even push their own vision of potential novel product meanings [11].

DLI encompasses a range of evolving tools that promote this new way of thinking [10], some already established within the field of business, such as SWOT Analyses, the Business Model Canvas and outside the discipline scenario planning and perspectives from the field of anthropology. While DLI utilises business tools and strategic planning, it is also based on the established ideas of *design thinking*, founded by the design company IDEO [12]. The DLI framework uses three cornerstones from design thinking; (i) what will provide the customers and stakeholders with the most desirable value, (ii) what is technologically feasible and (iii) what the business model needs to support this proposition [10]. Sustainable innovation occurs at the intersection of these three dimensions [12]. What makes DLI different from design thinking is the manner in which the innovation process is undertaken, providing businesses with much needed guidance and an evolving, adaptable process aiding each company in leveraging their own strategies, by disseminating the required skills [13].

Traditional strategic models fall short when there is insufficient organisational leadership to guide a company through the transformation towards becoming design led [8]. Previous research has demonstrated that an external stimulus in the form of an embedded Design Innovation Catalyst is needed for a cultural shift in a company to take place [14]. The Catalyst has the important responsibility of interpreting and translating concepts from the abstract world of theory and implementing them in the concrete world of practice, in which the DLI tools aid the process (see 8 and 14 for more on Catalysts). DLI can be used to bridge these worlds as well as

bring together and generate knowledge in the realms of academia and industry. According to Martin [15, p.8] *“Design skills and business skills are converging”*, which signifies it is necessary to gain a broader skillset and bring together knowledge from both worlds to create synergy.

Wrigley and Bucolo [8, p.9] state that *“a cultural shift from within the company is imperative to its success”*. This means the embedded role of the Catalyst, fostering collaboration and contextual understanding through a firmspecific, longitudinal cyclic reflection process is crucial. This intimate and ongoing understanding cannot be replicated through engaging a traditional consultancy, who would be working at a project specific level from the outside and in, rather than the overarching company level from inside out. Consequently, the challenge lies in guiding strategically challenged firms to gain strategic design management skills in order to undertake their own company development unassisted in the future.

B. Challenges of Small to Medium Enterprises

A small to medium enterprise can be defined as an actively trading firm that has between 1-199 employees [16]. In most nations around the globe 90% of all companies are SMEs [2]. In Australia this number was 99.7% in 2009, with another 700,000 SMEs started up by 2012 [16]. They may therefore be considered the foundation of the industrial economy, meaning their survival is essential for driving employment and growth [2]. It has been established that SMEs face greater barriers to innovation than larger firms, due to factors such as lack of access to resources and funding that may limit these activities [17]. Additionally, in the current economy incremental advances in technology and offering products with nominal improvements are no longer adequate to create competitive strategy [13, 18]. These advantages are often temporary and easily copied [7, 18].

Nevertheless, attempting to place the company in an increasingly lucrative spot in the market is still a widely used strategy, endorsed by the School of Positioning [7]. This outlook on competitiveness proposes that a firm will remain an industry leader as long as it places itself in a distinctly different position in the market, which must be defended at all times. However, strategic positioning does not provide management with much room to adjust, nor does it articulate *how* an existing firm can place itself in a new market through this costly relocation [18]. Porter [18] argues that this philosophy is fundamentally flawed as there is no such thing as the most beneficial market position, or else other firms would already occupy that space.

Numerous strategies and tools proposed by science and industry, mainstream books on the topic of business, and talks and videos from recognisable business thinkers encourage leading by example. However, many of these approaches do not consider individual contexts [19], and that changing markets require adaptable strategies co-developed with the firms themselves [18]. The absence of strategic direction or the need for educating management to gain relevant capabilities for sustainable planning, have been vigorously studied, yet most of the proposed solutions are overarching

hypothetical approaches or amendments of existing strategies [19].

Other challenges that SMEs are facing include the decreasing lifespan of technology and products, rising production costs and growing client expectations [1]. As a result, many corporations turn to design as an approach to innovation [4]. However, only a few companies are able to reap the benefits of design incorporation on higher and more comprehensive levels such as business strategy, indicated by the number of businesses still experiencing challenges in attaining results.

This suggests that there are clear barriers that need to be overcome to realise the full potential of using strategic design as a driver for lucrative development within businesses. The Cox Review [20] was conducted in the United Kingdom to establish what is holding small businesses back and what their innovation challenges involved. The main barriers identified were risk-aversion due to perceptions of high financial and time related costs, as well as lack of management training.

The strong link between successful design management and company performance is well supported by literature [e.g. 6, 19, 20]. “*Companies that manage design effectively and efficiently attain better performance than those that do not*” [6. p.424]. It is therefore important to understand how design is utilised differently by management in flourishing firms as opposed to struggling firms [19].

Designing can be described as a different way of thinking and combining strategic and creative approaches in order to reach a common objective [12, 21]. The benefit of using design is that it is constantly evolving to propose new approaches and can function as a means of creating unique provocations [21]. For a long time the task of designing and innovating within a business has remained in the hands of ‘the experts’ [12]. However there is an evident need for Australian business managers and employees to embrace and learn the skills of strategic innovation to compete in global markets.

C. Operational Efficiency vs. Strategy

The concept of a business model and a business strategy are often used interchangeably and perceived as overlapping by industry [1]. Every company operates according to a business model, whether deliberately and carefully designed or unconsciously and merely by default [19]. Porter [18] argues that a major problem many SMEs face is a lack of understanding of the need for a solid and distinctive business model. Moreover, he claims the main drawback of SMEs is lacking the ability to distinguish between *operational efficiency* and *strategy*. They are both essential to organisational performance, however they function differently. Operational effectiveness is achieved by executing activities in a superior way to competitors. Strategic positioning means conducting differentiated activities from rivals, or the same ones in a more beneficial manner to provide a unique and optimal set of values to the customers [7, 18, 22].

The search for operational optimisation and use of management tools is measurable and actionable and therefore appeals to management who tend to seek out low-risk, conventional methods [18]. Exploiting strategic thinking, to

establish differentiation is the only way true progression can take place [18]. Nevertheless, management of Australian enterprises are finding it challenging to exploit this on their own [2, 22].

Consequently, design led innovation has been developed as an alternative to traditional business and innovation methods, providing companies with desired, tangible, tools [8], that are not only based in the world of management or strategy alone [15]. Including design in this approach helps the company identify which activities should be undertaken to begin with, by enabling a holistic understanding of how to create market differentiation and leverage customer offerings through a solid business model and strategy [8]. Family owned and run firms that are not strategically predisposed are a good example of a segment that requires guidance and strategic design tools in order to develop their capabilities [23].

D. Strategy in Family-Owned Businesses

Worldwide, family businesses are the most prevalent form of enterprises; around two-thirds of all privately owned firms are run by families [24]. A family-managed company can be defined as a company where one family runs and holds more than 50 percent of the shares, where management includes a family member and the company considers itself family-owned [25]. There are many factors that impact their strategic innovation process and development, such as family values, norms, kinship, interactions, communication and socio-psychological aspects of ownership [25, 27]. All these and numerous other factors are deeply embedded in the culture; thus family firms form distinctive organisational structures [26]. When working with and within family owned companies it is therefore vital to develop cultural competency [27], which involves an understanding of the family culture and a sensitive consideration to firm reactions [25].

Research has also found that private benefits of control are highly valued and influential in family firm management. However, if they become the sole focus of owners this may be detrimental by compromising the best interest of the firm and stakeholders [28]. The overlap between ownership and control in family companies can either work as a benefit or disadvantage in strategic planning. Owners’ emotional attachment to firms may lead to a higher level of commitment or alternatively lead to strategic inaction [26].

These factors all heavily influence the decision-making process within management, for example in situations of strategic investment or risk-aversion [29]. Due to the complex nature and structure of family firms, the ‘Sustainable Family Business Model’ looks at the bigger picture and highlights that achieving both a thriving business *and* a thriving family is imperative to firm sustainability [30]. Consequently, aligning the firm and the family through a common vision is vital and a prerequisite to generate sustainable change within a business [31]. Sharing the view of business goals through a vision creates hope, structure and alignment and has been proven to be a crucial factor in management of family firms [26]. Nevertheless, most leaders rarely formulate their vision; instead they tend to describe the changes they expect to see,

which may cause tension within the organisation [32]. Creating a shared vision is central to reducing unproductive conflict and may also strengthen the family outside the business [33].

A simple and clear strategy designed around a collective vision is essential to guide employees and the whole firm to stay on a desired and beneficial track. Being able to execute on the strategy is needed for the company to make progress and prosper [22]. To act on strategic choices a company needs to be able to perceive the value and the necessity of strategy as a guiding scaffold for progression. They also need to differentiate this pursuit from the competitively unrewarding chase for operational efficiency [18].

Nonetheless, research by Collis and Rukstad [22] discovered that most companies are finding it highly challenging to articulate and incorporate strategy in their agenda's on their own and consequently abandon this mission or never undertake it to begin with. Although extensive research has been conducted on family firms, there is limited knowledge and resources available to owners to guide them in their challenge of developing the performance of their firms through strategy [26]. This paper aims to contribute with specific knowledge on family-owned SME challenges. In addition to the main research aims, this paper help promote the creation and offering of resources addressing a firm's needs, on their path towards developing competitive and strategic abilities.

III. METHODOLOGY

The action research (AR) approach can be characterized as a scientific social research method, and is regarded highly appropriate to achieve the aim of the research due to its participatory and practice-focused nature [34]. The rationale behind employing this approach is to facilitate purposive internal change within the participating firm [36], in order to strengthen their strategic capabilities. In this case the Design Innovation Catalyst will take on the role of facilitator.

Action research is emergent in nature and has dual goals, to generate transformation through actions and to provide understanding through research [36]. This promotes company transformation while generating new knowledge in the area of family businesses and strategy. AR can also be described as an ideal method of framing the problem at hand [35]. Its iterative cyclic processes of experimentation encompass learning, reflection and application of insights in order to bring about social change [36], which appropriately compliments the essence of the DLI framework.

Gustavsen [35] proposes that practical experience and collaboration play crucial roles in idea generation and action research is an ideal method to generate positive change by cultivating iterative innovation within its relative context. The researcher will be embedded within the partnering company four days per week for one year in order to undertake a longitudinal case study, which is currently in progress. The employees of a company, the human aspect of the SME, are the key drivers of innovation and strategic uptake. Therefore,

accessing and collaborating with them is necessary for action research to take place and to promote participatory learning [35]. As a methodology, it is considered "*more sustainable than traditional ways of learning, training and researching*" [37. p.1].

The AR method takes the form of a 'cycles-within-cycles-within-cycles' approach [36], where the Catalyst will go through repeated phases of (i) *Planning*, (ii) *Acting*, (iii) *Collecting* and (iv) *Reflecting*, as well as constantly re-framing and questioning assumptions. Later cycles test assumptions, reinforce validity and inform new rounds, through an evolutionary and receptive approach [34, 36]. A benefit of employing DLI in a longitudinal study is the opportunity to undertake *constant comparison*, [38] and to measure development trends [39]. The generated knowledge informs subsequent steps the Catalyst needs to take to respond to company needs in the process of working towards becoming design led.

A. Participating Company

The participating company can be described a small Australian lighting manufacturer. The firm is family owned and run and has a well-established local reputation of quality fittings and customisable designs, servicing the Australian coast for nearly four decades. Its instant success was a result of conquering a large customer segment through offering a lighting product that eliminated existing deteriorative challenges such as corrosion associated with the coastal environment. The uptake of this product accelerated alongside the building boom in the 1970s, providing opportunities of servicing both the residential and commercial arena.

For the last decade the company has been managed by a second generation of owners within the family, who have expanded the product range, incorporated newer technology and completed a range of larger yet highly successful commercial lighting projects for which they have received numerous awards. They have strong connections to local suppliers and regularly collaborate with partners. Nevertheless, the company has never undertaken any formal training in design, strategy or higher-level business management.

B. Research Participants

Seven of the eight individuals that make up the company were approached and agreed to participate in this qualitative study, forming a purposive sample. Four of these were owners of the firm and related through biological and legal family ties. Two of the owners were also company directors and managers. The other three participants were employees related to firm operations.

C. Data collection

Data were collected through conducting semi-structured interviews and an ongoing reflective journal [39]. The interviews lasted approximately one hour, and were commenced two months after first company engagement and

DLI project commencement. The duration of embedded practice prior to interview commencement provided a level of trust in Catalyst and established rapport [38]. The purpose was to examine employee perceptions of existing company dynamics and barriers to strategic development, as well as awareness of design as a strategic tool for innovation. Predetermined questions were made use of in addition to a few tailored questions specific to employee positioning within the firm. Prompts, in the form of verbal encouragements, were used to direct participants when topics of special relevance to perceived barriers to company strategy were touched upon. These prompts were used to promote further elaboration at the mention of for example future planning or management capabilities [39]. To create a diagnostic interview approach the questions were made open-ended [34].

The first author utilised a reflective journal as a tool for both constant and retrospective evaluation by creating daily entries contemplating observations of company dynamics and events, employee reactions, effects of implementing design led innovation tools and disseminating skills [40]. Utilising a journal promotes reflection on and in action, crucial to developing insights and continuous learning throughout the research project [40]. Reflection on reflections as promoted through the Action Reflection methodology [34] enabled a deeper understanding of trends, observable outcomes and an increased awareness of the impact of Catalyst input on company reactions and development.

The action research methodology, represented visually in

Fig. 1, and illustrates the modes of data collection as well as the Catalyst’s engagement and facilitation plan within the company. This framework will function as a representative guide of development over time, however it may change according to company needs throughout the DLI project. The dashed line illustrates how the Catalyst will move through the realms of *action* and *reflection*, while bridging the worlds of industry and academia. The labels on each ‘level’ of the framework signify the main intent and focus for the Catalyst when moving through these levels, examples being concentrating on analysing development or challenging employees. The section labelled company journey signifies where the catalyst will engage directly with staff within the company. Data collection points in time are depicted in the framework. The bold frame indicates the scope of the paper in relation to the 11-month project and highlights which data collection methods fall within its magnitude.

D. Analysis

A *thematic analysis* and *grounded theory* was used to examine emerging topics and trends from the research, by organising the data and identifying patterns [39]. The *realist* research epistemology informed data theorizing. The *theoretical* thematic analysis was analyst-driven with through an inductive approach [38]. A full immersion in the data was undertaken through the first author conducting the interviews using voice recording, then transcribing and manually coding the data [38]. *Axial coding* was employed across all raw data gathered through the collection methods of interviews and

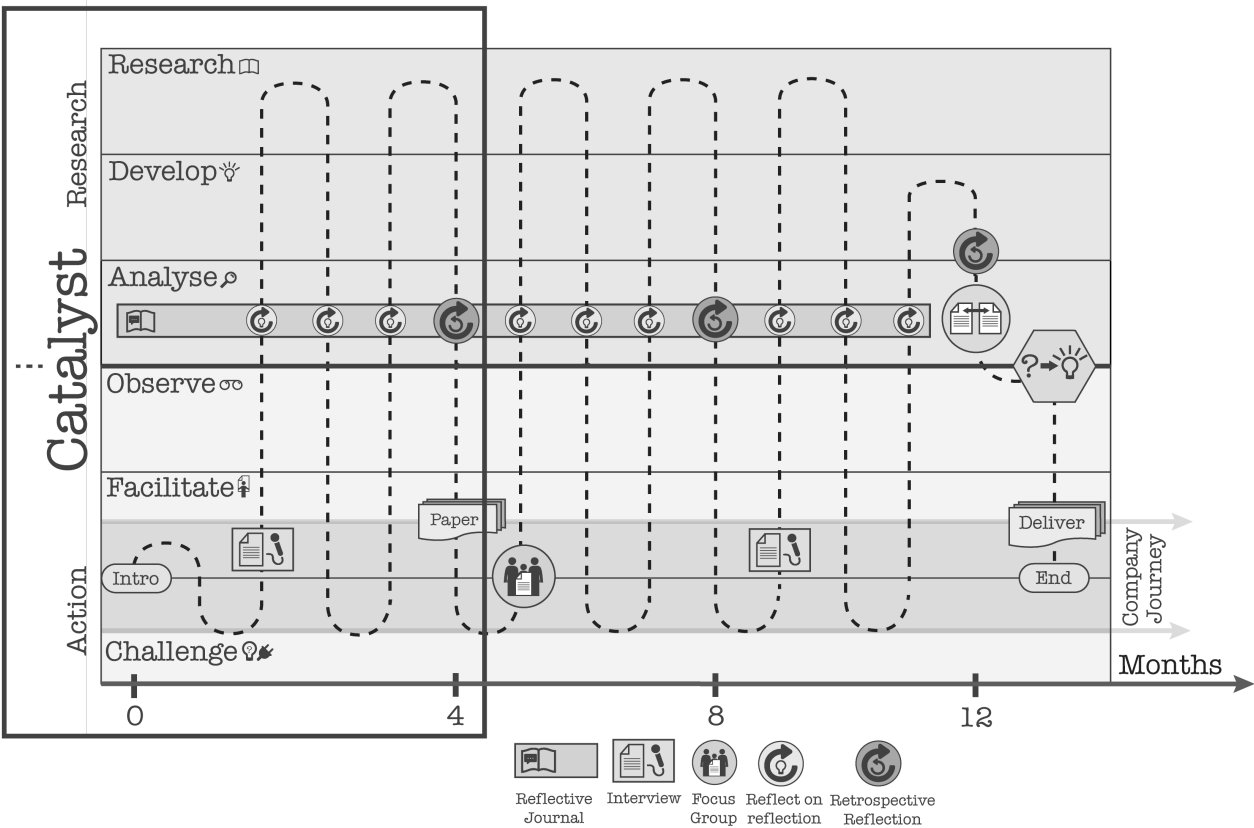


Fig. 1. Design Innovation Catalyst Framework of Action Research, data collection and Company Engagement.

reflective journal using constant comparison [39]. *Open coding* of transcripts into domains was used within each type of empirical data examining latent themes [38].

Data triangulation was utilised through collaboration of different types of participants, owners, directors and staff, in attempt to understand the impact of a theme on different areas within the company [39]. A comparison of findings and observable outcomes of company change enabled an assessment of DLI implementation success to overcome barriers identified by participants through the interviews. Mapping of information from the interviews and reflective journal through informed judgement and identification and discussion of trends provided the opportunity to observe patterns and firm progression [38]. This also supported testing of and strengthening the validity of insights [39]. The research findings are presented and discussed in the light of existing knowledge and separately formulated as contributions to new knowledge in the emerging field of design led innovation.

IV. RESULTS

The aim of this research is to investigate barriers to strategic development in a strategically inexperienced family-owned SME and identify how an embedded Catalyst can help the firm overcome these early challenges in the DLI transformation process through facilitation. This examination was undertaken through uncovering employee perceptions of internal barriers to strategic development and the existing role of strategy, vision and planning within the company. Results from the interviews and reflective journal from the first four months emerged under the following key themes: 'A) *Absence of Shared Vision as a driver for development*', with the subthemes 1) *Absence of Vision and Planning*, 2) *Conflicting Drivers* and 'B) *Focus on Operational Efficiency Instead of Strategy*', with subthemes 1) *Idealising Operational Efficiency* and 2) *Lack of Knowledge of Design as Strategy*. The findings are listed in the order of salience, followed by a presentation of results from design led innovation facilitation within the company.

A. *Absence of shared vision as a driver for development*

1) *Absence of Vision and Planning*

A clear key theme emerging from the interviews was the absence of a common vision as a driver for firm development. The participants were asked to articulate the company vision and their interpretation of a plan of attack to reach future goals. The two directors expressed *"I don't have a long term plan, I just deal –wrestle– with the monsters every day, so I don't get to sit back and try and think about that."* (Participant X) and *"We didn't have a meeting or a plan apart from supplying lighting as a plan."* (Participant X).

One of the directors identified the concept of having a specified vision as a missing element from the company agenda; *"A bit of a drive to achieve something, a goal, a grand final... there are no finals or goal..."* (Participant X). Nevertheless, it was apparent that the same participant had a level of awareness of the potential of a shared vision; *"I*

suppose I could help everyone else, maybe project more of a dream, create the idea, be involved in all the parts that are along the way, but it would probably have to start with creating the plan first." (Participant X). However, the other director perceived this as a barrier, as there was no one to take on the responsibility; *"Who is going to take up new technology, who is going to look forward, who is going to source new things. We don't have really a set agenda for that."* (Participant X).

A consistent notion of the lack of a collective aim also emerged from the other participants, when they all declared future goals and an associated plan as being nonexistent within the firm. One of the employees revealed a state of disengagement when asked about possible company development; *"I try not to get involved, I just do my work. I keep away from it."* (Participant X).

2) *Conflicting Drivers*

One of the directors had worked outside the family firm for an extended period and stated that he came in with a different attitude. The other director expressed *"He had a way that he felt it would be improved, and I suppose I knew how it was done before, so a meshing of the both."* (Participant X). Yet the failure of merging the differing outlooks was apparent to all staff members due them being *"...natural conflicting views"* (Participant X). This was observable by all employees within the firm and evident through reflective journal entries examining day-to-day events. This lack of shared drivers was perceived as a root of conflict and causing tension within the workplace; *"Instructions are coming from more than one point...it stuffs up little things, which turn into big things."* (Participant X). The two directors were the only participants who did not clearly state that having the same outlook is essential to eliminating the issues.

One participant expressed that there was no future planning since company meetings had been discontinued as a result of conflict caused by differing drivers, *"We need to have a meeting, but the meetings get too heated, so we're avoiding the conflict by not having the meeting."* (Participant X). Another participant stated that a lack of productivity and achieving results were other reasons for eliminating meetings, *"What happens in those meetings is there's too many people and too much agenda gets put on there ...There's no structure."* (Participant X).

B. *Focus on Operational Efficiency Instead of Strategy*

1) *Idealising Operational Efficiency*

One of the directors associated operational efficiency with successful management; *"I'd like to think that the manufacturing is effective that the order comes in and the process works well, so I suppose I'm disheartened if that doesn't happen."* (Participant X). Across the sample group there was agreement that improving operational effectiveness and efficiency would be the best solution to create a more lucrative firm for the employees to work in. Benefits of this were perceived to be ability to avoid problems, ease of

production, convenience and saving time. Management also considered effectiveness as a means of increasing sales through streamlined production; *"I'd like to see it have a nicely effective factory, that produced product that had good sales volume with a nicely automated system."* (Participant X). The overall wish from the group was to achieve successful management of internal processes.

Time, workload and financial challenges were seen as the biggest barriers in managing the business operations; daily pressing operations such as meeting customer demands through production was stated as the main priority, *"Well most of the time, whatever comes in today goes out today, might be, if we're short on something we need to keep on top of that too."* (Participant X). This was also evident in the diary entries reflecting on company everyday operations. It was also stated the way the business was set up meant that quantity, type and timing of incoming requests had an unpredictable nature effecting the daily agenda; *"You can't predict what phone calls you're going to get or what's going to take up your time or somebody else's."* (Participant X).

2) Lack of knowledge of Design as Strategy

The interviews also set out to capture company wide awareness of design as strategy, which was articulated as absent from company practice *"I don't know that we really have anything. I think we focus so much on our fittings that that's something that we lack in, we don't have that element."* (Participant X). Design strategy was also seen as foreign concept across the whole board, and only associated with product development; *"I don't know what other design there is?"* (Participant X). Perceptions of the current role of design within the firm can be exemplified with the following statement *"Um... (thinking) none! Ha-ha, minimal."* (Participant X).

Lacking formal training was believed to be the reason for not encompassing a higher level of strategic and business management skills; *"We have all been taught by someone in this business, no one has had any professional training. Everything is really self-taught. You're on the back foot before you even start."* (Participant X). Participants were asked what they thought strategic design through design led innovation could offer the firm which involved uncertainty of what to expect but also a hope for improved internal processes; *"Because it's all new I think, and I've never, I haven't been in the business where I've seen it... I haven't really seen how good it could be, I think to myself it's something that will make things run smoother, kind of put you up on that next step as in professionalism of the business."* (Participant X). The appeal behind incorporating strategic design was expressed by one of the directors through the following metaphor *"Building a nice fast boat to cross the sea quickly, rather than getting out there in a [defective boat] and thinking 'how am I going to get there now?'"* (Participant X). Nonetheless, time and financial limitations were also declared as barriers to planning ahead rather than focusing on the 'now'.

C. Impact of Design Led Innovation

A general awareness of design strategy has been created and fundamental business elements have been scrutinized and articulated for the first time. Additionally, owners and staff have had exposure to and practice in strategic design and thinking through DLI tools. Knowledge of the existing business model, where the company stands today, competitive situation, existing customer segments and value proposition has been generated. An understanding of the limitations of chasing optimal operational effectiveness and efficiency and the value of a solid and clear strategy has been created within management.

Employees have now shifted their perspective of different company drivers from merely a barrier, to creating an elementary vision. Through reframing and re-thinking this view of divergence, their view has been altered to represent a new business opportunity; developing a dual business model operation, with one collective vision. This new way of reframing enables the two differing drivers to be leveraged rather than limit the firm. Regular meetings and moderately open communication around firm development has been established, with no evident conflict during meetings as per time of writing.

V. DISCUSSION AND IMPLICATIONS

The investigation of the research question captured the employees' perceived barriers to strategic development. The results illustrate that the absence of common vision and planning, conflicting drivers and a lack of knowledge and application of strategy over operational efficiency, were the company's main barriers to strategic development. Consistent with existing research and observable industry tendencies, the participating firm found it challenging to undertake strategic development on their own, and as a consequence they had never attempted this [2, 22], until the start of the DLI engagement. Like many other firms, focusing on internal processes remained on the agenda due to its actionable appeal despite not being able to provide desired results to this date [18].

All participants believed that improving the effectiveness and efficiency of internal procedures would be of the highest benefit to minimise workplace hurdles for employees. Management was of the clear conviction that operational efficiency would be their best opportunity for development and neglected planning. Furthermore, one of the directors directly associated effective manufacturing processes with successful management, disregarding the importance of strategy as a vital management procedure. The notion of working 'IN the business rather than ON the business' was an evident characteristic of the company [6]. This lack of strategic focus may be influenced by the perceived importance of prioritising everyday jobs and justified by the need to meet customer requests and the unpredictable character of orders. This meant management was left with no resources to plan for the future. This yearning to enhance production to increase profit can be seen as a sign of inability to create a sustainable revenue stream, a widespread problem for firms that chase operational efficiency [18].

The majority of the participants recognized the stagnant progression of the firm and the need for change. However, recognition of strategy as a driver for change rather than boosting effectiveness was clearly absent, consistent with literature [22]. Diverging drivers and the absence of a mutually shared vision were evident barriers within the participating firm. Furthermore, existing studies have established that strategic decision-making in family owned firms is influenced by a wide range of additional factors such as values, norms and communication [25]. These factors are all ingrained in the complex culture of the family, both internal and external to the firm and that the Catalyst's cultural competency is a deciding factor [27]. This signifies that any employed strategic approach may have limited impact on the role of these cultural aspects play in the transformation of the firm. This discussion is outside the scope of the current paper, but may be explored through later findings from the 11-month study. Consequently, all the aforementioned barriers are all issues affecting design and strategic management and may be additional barriers within the firm.

It is widely accepted that there is a strong link between successful design management and company performance, and that design plays an important role in managing innovation in both the operational and strategic levels of an organisation [6, 19, 20]. Nevertheless, traditional strategic models are not sufficient on their own; they depend on successful organisational leadership to guide a company through the transformation towards becoming design led [8]. Design led innovation is as an alternative and advantageous solution and the Catalyst helps provide the necessary leadership to commence a process of strategic change [8] as deemed vital in literature [6, 7]. The action research method also played a crucial role in the undertaking of social change within the firm; through its evolutionary and iterative reflective process, ensuring a constant evaluation of company needs along the way.

The participating firm reported that utilising and managing strategic design were foreign concepts. Therefore the potential of competing through a solid strategy was underused, in spite of being vital to company survival and prosperity. Due to the lack of internal competence and awareness, the firm could not undertake the process of transformation to using design as a strategic driver. Participants believed absence of high-level business awareness, practice and skills was the result of a culture of learning by doing and being self-taught. This means that targeted guidance and training is needed, which is offered through the DLI approach to reap the benefits of using strategy. The motive behind embedding DLI within the firm is to test this emerging strategic approach in its ability to help owners and employees strengthen their firm competence and overcome the identified barriers. This is essential in a time where strategy is not a luxury but a necessity and there is a great need for firms that are not strategically predisposed to learn to compete confidently [18] and "*transform the way it looks at strategy*" [13. p.3].

The Design Innovation Catalyst was used as a means to introduce strategic design and disseminate associated knowledge to create strategic management and development

capabilities. This has allowed the firm to undertake change during the embedded practice as well as increase their proficiency to develop autonomously in the future. Design led innovation was used as the language of communication to create awareness of the value of strategy and the limitations of company survival and growth when only focusing on operational optimisation. This shift in the firm perception of strategy from unknown to being valuable is key to lucrative development [18]. This common language has facilitated meetings encouraging communication leading to minimal conflict.

The DLI tools and thinking styles introduced through DLI assisted the company in developing strategy and a holistic company vision relative to their context, which is a novel undertaking for the firm. As authorities have pointed out, established business approaches rarely consider the complex needs of businesses' individual contexts [19] and they do not provide any guidance for inexperienced firms [26]. In contrast, DLI has provided this needed consideration through longitudinal Catalyst integration to gain understanding. Articulating the business model under which the firm operates was also a novel activity for the firm. Using these tools has eliminated a previously stated widespread problem for SMEs within the participating firm, which is operating according to a business model by default, to now understanding the need for deliberate design [18].

The perspectives, tools and way of reframing have been essential to create a platform for communication centred on the idea of 'what is in the company's best interest to ensure a sustainable company future'. This means the differing drivers that were previously purely detrimental, have been embraced through the creation of a dual business model. A mutual understanding has been found through the articulation of a shared vision. Establishing a preliminary purpose, vision and plan are crucial steps on the path towards this goal of strengthening the firm. Operating according to a communal vision will also help align the firm as found through literature, and is necessary in order to work towards the same goals and to generate sustainable change [22]. The absence of a formulated vision may have contributed to internal conflict through an insufficient direction, in accordance with Boyatzis & Soler [32]. Collaborating on forming a strategy has therefore helped decrease unproductive conflict, as suggested by Kellermanns and Eddleston [33]. Furthermore, this highlights the benefit but also the need for a Catalyst to mediate, unblock and guide the firm through their preliminary steps on the path of transformation.

This paper contributes to our understanding of the initial challenges and limitations of utilising DLI as an approach to transform strategically novice firms. Identifying some of the barriers that need to be overcome to progress to the next phases in the larger scheme of the building strategic competence within the firm. This research seeks to add value to family owned firms and SMEs similar to the participating firm by helping them to become aware of unarticulated and unexamined barriers to strategic development, such as idealising operational efficiency or lacking a common vision. The study may also aid other firms by illustrating that

strategically inexperienced firms also have opportunities for development through strategic development and innovation. We are in an era where companies must innovate business *in itself* and *by themselves*, in order to survive in a flooded market. However, the lack of capabilities, knowledge and available resources may hold this type of strategic development back, since companies 'do not know what they do not know' and often focus on old ideas of business management [1, 10, 18, 19]. Hence the facilitation and embedment of a Catalyst can provide crucial 'know how' to the firm and kick-start the journey of competitive capability building and development beyond Catalyst facilitation [14]. Challenging the encompassed thinking style within a firm culture may be a crucial first step for many, through the realisation that strategic thinking is not only for the already successful and pioneering firms; it can be made available and is applicable to all firms. This research is opportune and invaluable in a time where strategy is essential and chasing operational maximization is no longer adequate [18]. In other words, there is a need to alter old ideas of idealised operational efficiency, and disrupting the cultivation of 'business as usual' attitudes. SMEs may harvest more of their potential by focusing on envisioning, planning and working towards a different but possible future, which can be facilitated by using design led innovation philosophies, tools and approaches. Practical contributions from this paper include new insights to business advisors and academia by providing empirical data on industry challenges to firm development. This paper contributes to the knowledge gap in literature by providing empirical data on a strategically inexperienced family-owned SME and their perceived barriers to strategic development.

A. Limitations

The small sample size can be considered a limitation of the study; nevertheless, due to the size of the firm, engaging seven individuals makes for almost full coverage providing a good view of company dynamics. Furthermore, the qualitative nature of the study enabled a particularly in-depth examination of participant perceptions at multiple points within an extended timeframe. This research forms part of a larger longitudinal research project of company transformation using DLI over 11 months, whereas only the first four months are examined in this paper. Learning from the preliminary stages through reflection will provide opportunities for improving approaches and tools for the subsequent phases. In addition the full potential of overarching insights is not possible and measurable until the embedded practice has been completed. Protecting company privacy and confidentiality agreements limited the possibility to fully disclose findings related to internal operations.

B. Future Work and Research

Building upon this knowledge will help tailor the application of design led innovation to culturally transform the participating company as a part of the next phases of the 11-month embedded research project, where the intent is to assist the participating firm in overcoming the emerging roadblocks

of a nondesign inclined company. This progress will form the basis of further exploration and strategic development, as the company continues on the journey towards becoming strategically capable and design led. Consequently, important work still lies ahead, yet initial outcomes would not have been rendered possible to undertake by the firm independently. Nevertheless, there are still underlying conflicts of interest, which must be worked through and are outside of both the Catalyst's abilities and DLI's application relevance and capability. Although barriers are still present, the company as a whole has taken an important first step of commitment to change and a vision for growth.

Conducting this research and utilising the Design Innovation Catalyst role, enables the researcher to participate in reshaping Australian industries as solicited by governing organisations [1]. The full potential of DLI is yet to be explored, however using strategy to strengthen Australian Industry is a first step, and piloting and refining this approach should be placed high on the research and industry agenda. This embedded study supports DLI as an emerging business innovation method through proof of concept to industry and academia.

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